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NOTES ON A COLLECTION OF BATS FROM MONTSERRAT, LESSER ANTILLES

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Although seven kinds of bats have been reported previously from the Antillean island of Montserrat, all apparently were collected incidental to other activities. On the nights of 30 and 31 July 1978, we netted bats over the Belham River on the northwest coast of the island. Six species were taken, one of which is new to Montserrat and several others of which were known from the island by one (in one case) or only a few specimens.

On 30 July, we strung two nets over the river, one near its mouth and the other under gallery forest about a half mile above the mouth. Three nets were set out on the evening of 31 July, all beneath the gallery forest (Fig. 1). At the place we netted, the Belham River was bordered on one side by a golf course and on the other by a sloping hillside on which widely spaced residences were located.

Field work on Montserrat was conducted following a sojourn on the island of Dominica, which was sponsored by The John Archbold Family Trust. Actual expenses on Montserrat were defrayed through the Texas Tech University Foundation. In the following accounts, all measurements are in millimeters. Specimens are on deposit in The Museum at Texas Tech University.

Noctilio leporinus mastivus (Vahl, 1797).—Ten specimens (TTU 31295-31304), nine adults and one volant young, were collected in the two nights we netted over the Belham River, and many more were seen coursing over the river and the small bay at its mouth. Two of four adult females were lactating; the others

evinced no macroscopic reproductive activity. Two adult males had testes measuring 6 and 10 in length. We follow Davis (1973) in referring our material to the subspecies *mastivus*.

Chiroderma improvisum Baker and Genoways, 1976.—This unique species was named and described by Baker and Genoways (1976) on the basis of a single individual, an adult male, taken on the island of Guadeloupe in 1974. The second known specimen of *C. improvisum*, a young adult female (TTU 31403), was taken on Montserrat, which is located some 55 kilometers to the northwest of Guadeloupe, on the night of 31 July.

The newly acquired specimen resembles the holotype, differing from it only in being slightly grayer and less richly colored dorsally, probably resulting from its relative youth, and in being slightly smaller cranially but with somewhat larger molars, particularly in the lower dentition. Comparative measurements of the two known specimens of *C. improvisum* (those of the holotype in parentheses) are: total length, 85 (87); length of hind foot, 17 (15); length of ear, 21.5 (21); length of forearm, 57.3 (57.5); greatest length of skull, 29.2 (29.9); condylobasal length, 27.5 (27.7); zygomatic breadth, 18.8 (18.9); mastoid breadth, 14.2 (14.3); least postorbital constriction, 6.4 (6.5); breadth across upper canines, 7.0 (7.2); length of maxillary toothrow, 10.8 (10.7); mandibular length, 20.6 (20.3). No ectoparasites were found on our specimen.

Artibeus jamaicensis jamaicensis Leach, 1821.—This large, frugivorous species is common on Montserrat. We took several hundred in our nets, of which 20 (TTU 31383-31402), all adults, were saved as museum specimens. Six males had testes averaging 9 (7-10) in length. We have reproductive notes on 11 of 14 females. Of these, one was pregnant (fetus 37 in crown-rump length), one bore a young in a collecting bag after capture, seven were lactating, and two, one of which is relatively young, evinced no gross features indicative of reproductive activity.

Ardops nichollsi montserratensis (Thomas, 1894).—This race of *A. nichollsi* was known previously from but three specimens (Jones and Schwartz, 1967), the holotype from an unknown location on Montserrat and two specimens from the Dutch island of St. Eustatius to the northwest. Jones and Schwartz opined that the subspecies "also may occur on the intervening islands of Nevis and St. Christopher." We took 12 of these bats (TTU 31345-31356) in the two nights we netted on Montserrat.



FIG. 1.—Gallery forest along the Belham River. Mist nets were set over the river at this location.

Morphometrics of *M. n. montserratensis* are poorly known, and we here provide measurements of the forearms and crania of our 12 specimens, those of nine males (several of which are young adults but with fully developed crania) preceeding those of three females, which average larger than males in this species: length of forearm, 49.5 (48.4-51.2), 49.6 (47.8-50.9); greatest length of skull, 23.6 (22.7-24.3), 24.3 (24.0-24.6); zygomatic breadth, 15.6 (14.7-16.2), 15.7 (15.6-15.8); postorbital constriction, 5.9 (5.6-6.2), 5.8 (5.5-6.1); mastoid breadth, 12.7 (12.3-13.1), 13.2 (13.1-13.3); breadth across upper molars, 10.2 (10.0-10.8), 10.7 (10.6-10.8); length of maxillary toothrow, 7.5 (7.2-7.7), 7.8 (7.5-8.2); length of mandibular toothrow (c-m3), 7.6 (7.3-7.9), 8.0 (7.9-8.1, two specimens only).

Variation in number of upper molars was reported for *A. nichollsi* by Jones and Schwartz (1967), the peglike M3 being absent on the left side in two of 29 skulls examined by them. Among our 12 specimens, a male and a female lack this same tooth, and the female also lacks both lower third molars. Additionally, one male lacks all lower incisors, probably lost in life, and both upper and lower canines evidence excessive wear on account of the lack of incisor occlusion.

In the original description of *montserratensis*, Thomas (1894) noted that the holotype (the only known specimen for more than 70 years) lacked the white spot at the base of the wing that is characteristic of this and several related genera of stenodermine bats. However, the two individuals reported from St. Eustatius by Jones and Schwartz (1967) possessed such a spot as do all our specimens.

A. n. montserratensis is the largest subspecies of a monotypic group limited in distribution to the Lesser Antilles. When Jones and Schwartz (1967) reviewed the genus *Ardops*, they aligned the four named and closely related taxa (previously recognized as distinct species) as subspecies of *Ardops nichollsi* and described a fifth race from Martinique. Females average larger than males in size, both externally and cranially, in the genus. Taking this into account, Jones and Schwartz reported that a "continuum in size can be demonstrated among the five subspecies but the continuum is not clinal, suggesting that the various insular populations have adapted independently to conditions prevailing on individual islands."

The cline noted by Jones and Schwartz is confirmed by recently collected material from the northern segment of the range of *A.*

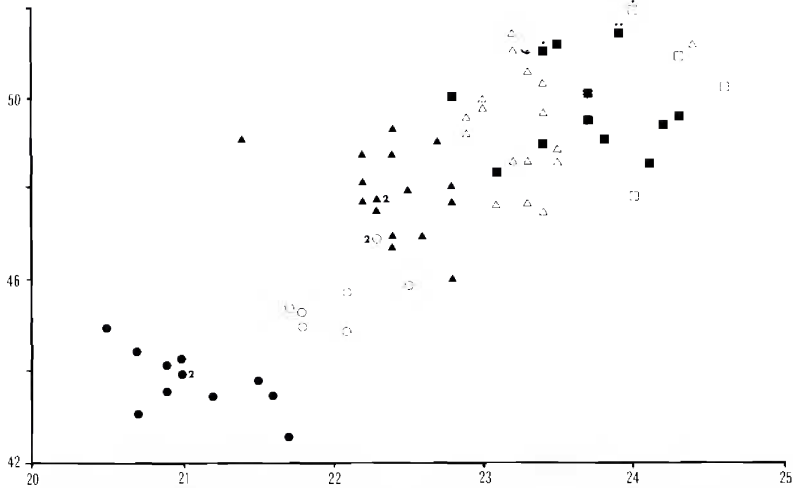


FIG. 2.—Scatter diagram on which length of forearm (ordinate) is plotted against greatest length of skull (abscissa) for specimens of three subspecies of *Ardops nicholsi*. Individuals of *A. n. nicholsi* are represented by circles, those of *A. n. annectens* by triangles, and those of *A. n. montserratensis* by squares. Males of all subspecies are indicated by solid symbols and females by open symbols. The holotype of *A. n. montserratensis* is indicated by two small dots above the symbol; the two specimens of that subspecies from St. Eustatius are identified by a single dot above the symbol. In three instances, two specimens are represented by a single symbol.

nicholsi and is documented in Fig. 2, which illustrates the large size of *montserratensis* on the basis of many more specimens of the three northern subspecies of the species—*nicholsi* from Dominica, *annectens* from Guadeloupe, and *montserratensis* from Montserrat and St. Eustatius—than were available to Jones and Schwartz. The sexual dimorphism characteristic of these bats is evident, although it is more pronounced in *A. n. nicholsi* (the smallest subspecies of the species) than it is in the larger races. The only “misplaced” specimen in Fig. 2 is an exceptionally large female of *annectens* reported from Guadeloupe by Baker *et al.* (1978) and reexamined by us.

Brachyphylla cavernarum cavernarum Gray, 1834.—Swanepoel and Genoways (1978) recently reviewed the systematics of the genus *Brachyphylla* and examined specimens of *B. c. cavernarum* from Montserrat. We took nine of these bats (TTU 31448-31456) on the island, including one volant young. Of six adult females, four were lactating. Two adult males had testes measuring 6 and 7 in length.

Molossus molossus molossus (Pallas, 1766).—Although Jones and Phillips (1970) and Baker and Genoways (1978) reported this small, free-tailed bat as occurring on Montserrat, we cannot now trace the original source of record. Nonetheless, *M. molossus* is a common bat on the island. We collected 22 specimens (TTU 31541-31562), all adults, and released several hundred more taken in our nets.

Of 18 females in our series, 11 were lactating and seven were pregnant with a single fetus. Crown-rump length of fetuses averaged 23 (13-27). The testes of one male measured 6.

LITERATURE CITED

- BAKER, R. J., AND H. H. GENOWAYS. 1976. A new species of Chiroderma from Guadeloupe, West Indies (Chiroptera: Phyllostomatidae). *Occas. Papers Mus., Texas Tech Univ.*, 39:1-9.
- . 1978. Zoogeography of Antillean bats. *Spec. Publ. Acad. Nat. Sci. Philadelphia*, 13:53-97.
- BAKER, R. J., H. H. GENOWAYS, AND J. C. PATTON. 1978. Bats of Guadeloupe. *Occas. Papers Mus., Texas Tech Univ.*, 50:1-16.
- DAVIS, W. B. 1973. Geographic variation in the fishing bat, *Noctilio leporinus*. *J. Mamm.*, 54:862-874.
- JONES, J. K., JR., AND C. J. PHILLIPS. 1970. Comments on systematics and zoogeography of bats in the Lesser Antilles. *Studies on the Fauna of Curaçao and other Caribbean Islands*, 32:131-145.
- JONES, J. K., JR., AND A. SCHWARTZ. 1967. Bredin-Archbold-Smithsonian Biological Survey of Dominica. 6. Synopsis of bats of the Antillean genus *Ardops*. *Proc. U.S. Nat. Mus.*, 124(3634):1-13.
- SWANEPOEL, P., AND H. H. GENOWAYS. 1978. Revision of the Antillean bats of the genus *Brachyphylla* (Mammalia: Phyllostomatidae). *Bull. Carnegie Mus. Nat. Hist.*, 12:1-53.
- THOMAS, O. 1894. Description of a new bat of the genus *Stenoderma* from Montserrat. *Proc. Zool. Soc. London*, pp. 132-133.

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